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ABSTRACT

Accountability and economy may be accomplished by linking educational goals, activities, and programs to periods of development and by individualizing instruction on the basis of more specific information about a child's development. Large populations of children generally are available for study in school districts, and human development studies often can be carried out without undue interference with the ongoing educational process or invasions of privacy and at no great cost to the district. A school district committed to basic research designed to illuminate the interaction of human development and the educational process will find itself making contributions to education and to the understanding of the development of children. (Author)

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A Proposal for Application of Basic Research in Human Development to Educational Planning and Evaluation

by

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Social institutions, most notably schools, have long been concerned with their impact on developing human organisms. Schools find themselves in the peculiar position of attempting to manipulate the environment of children in order to bring about progressive increases in intellectual development without determining if they are doing that, or are merely creating an ambience within which the child matures and, therefore, grows intellectually. Of course, maturation alone will not bring about reading skill, arithmetic achievement, or knowledge of the French and Indian War, nor will unsystematic exposure to these things at points of immaturity of the child. The school does not know clearly how maturation and environmental effect (i.e., schooling) complement each other, nor how historical time affects today's students.

For years, basic developmental research has been carried on in public schools, but almost exclusively under the direction of professors and other scientists from nearby universities or organizations such as the Psychological Corporation or Educational Testing Services, etc. Much of the developmental psychology literature which has been developed this way has been

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interpreted from the viewpoint of the academician and the laboratory. These interpretations then filter through curriculum developers and teacher trainers at colleges of education back to the public schools. An adequate structure for facilitating this process of filtration and the effect of research on teacher education and the public schools does not exist (Shearron and Hensel, 1973) and perhaps cannot be developed under present conditions of separateness of universities and public schools. Other developmental researchers spent little time and effort relating school phenomena to child development; and many of the famous longitudinal studies used intelligence and achievement but did not integrally involve school personnel (Kagan, 1964). Some more recent studies of development suggest that the traditional longitudinal and cross-sectional methods may not adequately describe children's development and responses to their environment (Schaie, 1972,1973); and some (e.g. Baltes, Baltes and Reinert, 1970) demonstrate the application of new methodology to the old question of relating time of measurement to age and cognitive development.

These studies plead eloquently for the active involvement of school districts in basic research into child development. It may become possible to associate bits of change with their probable causes; more practical would be the possibility of designing curricula to support children's growth patterns. Many problems of curriculum construction -- sequencing, timing, intensity, etc. - may yield to an increased understanding of the contribution of schooling to a child's growth. Curricula coordinated with children's natural growth patterns and sensitive to historical time could be a great asset to teachers involved in day to day classroom activities.

Research initiated and controlled by school districts is likely to more directly affect curriculum and school process than is research conducted within schools but directed by others.

Lack of knowledge of the interaction of development with schooling can interfere with adequate curriculum design in early childhood education centers, nursery schools and kindergartens, as well as elementary and higher grades. Berman and Roderick (1973) point to the "inharmonious relationships" between curriculum design and research methodology and criticize educational research for avoiding tough curricular problems. They state that the child must be studied within the context of the school and classroom. It is also important for the investigator to have more than a casual understanding of that context.

An examination of prescribed curricula for programs ranging from Head Start and Follow Through to the English Primary School demonstrates a widely held belief in a standard pattern of development which more or less follows that proposed by the Gesell Institute. While that pattern is probably generally correct, it does not speak specifically to certain questions of cognitive development which must be answered before the "tough" curricular questions can be asked. Piagetian developmental stages are attracting a great deal of attention now as an alternative to the standard pattern. Here, too, little work has been done in classrooms under the direction of school people, and curricular changes cannot be based on some of the very intriguing concepts of the Piagetian schema without that knowledge.

With demands for accountability and economy increasing, school districts are being asked to justify education programs, activities and goals. This justification may be accomplished by linking the goals, activities and programs to periods of children's development and then individualizing instruction

on the basis of more specific information about a particular child's development, thus providing for the interaction of development with schooling. School districts generally have not indulged in basic research in human development, but strong arguments can be made for so doing:

(1) Without adequate knowledge of patterns and rates of development, setting education goals for any age group or for specific children within an age group is inefficient. Unless both patterns and rates are known, learning hierarchies, or even simple learning sequences cannot be established with any confidence. Although numerous learning sequences and hierarchies are now established, little evidence exists to indicate which of many choices is optimum.

(2) It is to the economic advantage of a school district and hence its leaders and patrons, to know how children develop. Fewer children will fail, requiring less expensive remediation, when instruction is based on the interaction of developmental principles and education. Realistic general curriculum plans, system and course goals, and plans of study which rely on developmental sequencing (e.g., career education) cannot be created without such knowledge.

(3) Much that is known about child development is based upon flawed research. The outstanding longitudinal studies of the recent past, which have contributed so much to our understanding, incorporate cultural and measurement assumptions that are untenable in today's world. (Kagan, 1964, Sontag, 1971) Most of them were of necessity done with very restricted samples and primitive methodology and cannot present true pictures of today's children and their intellectual development.

(4) Child development, unrelated to actual educational settings, cannot of itself tell us anything useful. If the development is observed and measured in relation to, or interaction with, educational settings then schools have a basis for compiling curriculum, courses of study, sequences of education, and goals for the education of these children. Much of what has been done so far in the way of curriculum development has been based on sound logical principles, but evidence to corroborate the logic is lacking.

School districts represent cross-sections of current multicultural society. Generally speaking, large populations of children are available for study; and most often the type of studies desirable from the standpoint of human development can be carried out without undue interference with the ongoing educational process, without invasions of privacy and at no great cost to the district. An example of this kind of research is a kindergarten study underway at the moment in Area I, a division of Portland School District. Although the assumption of randomness cannot be made - as it cannot in most studies outside a laboratory, and those depending on volunteers inside a laboratory - it has other necessary characteristics of a research design. Data were gathered to serve both the research purpose and the educational purpose. An adequate comparison group was established and the results, while perhaps not widely generalizable, were fairly clear, indicated directions for future research, and directions for future educational thrust.

Children of kindergarten age enrolled in five experimental kindergartens were the subjects of the study. All participating children were tested for fine motor control and reading readiness with the Wide Range Achievement Test

(WRAT) and for general maturity with the Draw-A-Person Test (DAP). On the basis of these tests and the clinical judgment of school psychologists, the diagnostic team classified the children into groups based on predicted success or failure at learning to read in first grade. At the end of the school year the children were reassessed and the numbers still at risk tabulated. Gains in reading readiness and fine motor control, end year risk categories and DAP scores were correlated, demonstrating relationships between DAP and age; DAP as a measure of maturity and reading readiness; DAP and fine motor control; and DAP and risk status.

Age was not directly related to risk status but was related to level of development which was related to risk status. Although not much variance in risk status was explained by DAP, the evidence is sufficiently intriguing to warrant further study; and further study is being undertaken of following kindergarten classes and the first graders who were last year's subjects. The nature of the study thus far is dual. The initial impetus was the satisfying of federal requirements for evaluation of a project dealing with preparing kindergarten children for learning to read; however, from the beginning it was set up an an experimental design, anticipating gaining some basic information on the development of children of that age and relating it to their educational experience. As the study develops longitudinally it may become possible to determine sources of developmental variance as being within the child (maturational) or coming from the environment. Pinpointing environmental factors then becomes a possibility; and separating current (transilient) effects from generational (cohort) effects may provide clues to the actual effects of schooling on children of these ages and developmental statures. These clues should help educators more

rationally determine the most effective times and sequences for exposure to parts of the curriculum. This study may possibly contribute as much to basic knowledge in the field of cognitive development as would a well-controlled laboratory study and will be more generalizable to the real world. Because the work is being conducted under field conditions, replication will be meaningful in the field and the credibility and utility of the work increased. There could be an impact from this research on the preparation of children for learning to read. Cost to the district thus far has been almost nothing, since needed extra analysis, study and writing has been done after hours by the investigator. School district sanction would permit more intensive analysis and followup, using information which is available but time consuming to assemble. Further in-depth interpretation and study would cost the district a few hours of professional and clerical time.

Basic developmental research could benefit the educational process within public schools in areas of remediation and assistance to educationally handicapped or disadvantaged. The research can be carried out within the framework of programs already in existence or contemplated within a school district. Programs such as Title I of Elementary and Secondary Education Act (ESEA) and Title VII of Emergency School Aid Act (ESAA), if implemented with the added purpose of research in mind, can provide information of great value to educators and scientists that reaches far beyond the immediate effects of helping today's children. With the knowledge of development and group and individual differences that could be gleaned from research-plus-remediation oriented programs, it may be possible to be more effective in remediation; and perhaps by permitting the development of more rational

curricula better suited to the children's needs, it may be possible to reduce the number of children damaged by the present educational process and in need of remediation. Properly designed studies could provide information on how educationally handicapped or disadvantaged children were developing, how this development differed, if at all, from that of children not so classified and possibly indicate factors that might be susceptible to intervention by public school educators. Knowing patterns of development of these children then permits more rational curriculum presentation and prescription for them.

Justification for the expenditure of funds for basic studies is amply provided by the need to more effectively aid the many children, particularly of minority groups, who are not profiting fully from their attendance in public schools. That this information can be made available to other educators and scientists is an added bonus. The cost of including a research component in programs such as these would be the price of permitting the investigator time for designing the study and for processing data and analyzing the results. It would not necessarily require personnel hired specifically and only for research.

The proposal, then, is simply that a school district permit its evaluation/research personnel to include in their evaluation designs (for those programs and projects which lend themselves to it) components which will satisfy requirements for rigorous basic research in human development and which will therefore contribute both to the fund of knowledge of human development and to practical areas of curriculum development. This would require acceptance by the district of the need for these investigators to have time and support for background study, contemplation, and full analysis of the

information gathered, and for writing and sharing of the results. A school district which committed itself to basic research designed within the framework of its educational programs to illuminate the interaction of human development and the educational process would find itself making contributions to education and to the understanding of the development of children. There is much to be gained, at little cost, from this course of action.

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